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ABSTRACT

Research designed to compare student satisfaction between a traditional-lecture psychology course and a personalized system of instruction (PSI) course is described. Students compared two identical courses in personality taught by the same instructor. Students were generally more satisfied with the PSI course. The results are that they found the assignments more mutually reinforcing, and felt that the PSI course introduced more new ideas, concepts, and methods; rated their satisfaction with the instructor higher in the PSI course because they believed that he showed more enthusiasm and placed the course within a larger context than the traditional lecture course; and rated their own performance higher and believed that they prepared more for the class sessions and participated more in class discussion. (Author/DE)

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Some Comparisons Between Traditional Lecture and PSI Instruction: Student Satisfaction

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Rising enrollments over the past several decades have forced most universities to adopt large lecture classes as their prime teaching modality. Informal seminars, small classes, and individual tutorials have become a luxury on most college campuses as they are usually restricted to selected upperclassmen. The efficiency of the lecture class in handling large numbers of students has, unfortunately, not been matched by an increase in the quality of instruction. For the most part, the traditional college course has vague and unclear goals, relies on ambiguous standards of performance with perhaps two samplings of knowledge, and is characterized by impersonal student-faculty interaction.

Recently, personalized systems of instruction (PSI) have been developed to improve the quality of undergraduate teaching (Ferster, 1968; Keller, 1966, 1968). PSI courses have been shown to produce significantly higher levels of performance than traditional lecture methods. Whether the evaluation over course material be essay, multiple choice, or fill-in, PSI instruction has produced superior results in each case (Born, Geldhill, & Davis, 1972). Also, this higher level of performance is true across disciplines (Moore, Mahan, & Ritts, 1969), and it has been shown to yield better recall and working knowledge of material (Morris & Kimbrell, 1972)

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and long-term retention (Corey, McMichael, & Tremont, 1970).

Although there is a great deal of reliable information on the efficacy of PSI instruction, many questions still remain. The present experiment sought to compare a PSI form of instruction with a more traditional method in an area where there have been less definitive findings, i.e., course satisfaction.

Students consistently rate PSI courses as more satisfying than traditional courses. These reports are based primarily on questionnaires which are administered at the end of the courses which they are designed to evaluate. Some of these reports are based on evaluation of a PSI course alone or in comparison with more traditionally taught courses. An example of the type of evaluation based on courses in general is provided by Gallup (1969) and Philippas and Sommerfeldt (1972). In these courses, students are asked to rate the course in comparison to other college courses they have taken. Generally, students rate the PSI course highly favorably and indicate that they worked harder, learned more, and are generally more satisfied with the course. Also, as Born and Herbert (1971) suggest, students are more likely to recommend a PSI course to their peers than other courses.

The evaluation of PSI courses with more traditionally taught courses, either by the same or different instructors, is equally positive. Thus, Morris and Kimbrell (1972) found that 50% of an experimental group rated a PSI course as one of the best they had ever taken, whereas half of the individuals in the control and traditionally taught course rated it below average. Similarly, Sheppard and MacDermot (1970) found that a PSI course was considered more organized, provided more stimulation for the student,

promoted better student-faculty interaction, and had greater long range value than the comparable control course. On a variety of questionnaires designed to tap a number of components of a course, PSI courses are ranked superior to those taught in a more traditional manner. The proposed study sought to also investigate the satisfaction of a course which was taught by the same instructor over the same content area but included a more precise analysis of three separate components: the student and his progress, the course in general, and the instructor. This analysis will provide a more precise view of dimensions which may appear important in further modifications of the PSI method.

Procedure

A course in personality was organized in a PSI format which allowed for self-pacing through 14 units, optional attendance at lectures and discussion sessions, and complete mastery of a unit before proceeding to subsequent material. There were no mid-term nor final exams, and students could take a unit quiz whenever they liked. Also, the students were allowed to take a quiz over the same material until they mastered it.

Each unit quiz was worth 10 points, attendance at discussion sessions was worth from one to two points, and an optional paper was worth five points. Students received a handout at the beginning of the class which completely described the course and included a schedule of optional lecture topics, available testing times, dates of discussion sessions, and a graph showing average, fastest, and last-minute rates of completion. Also, a distribution relating points earned to grades was given (e.g., A = 133-146, B+ = 127-132, etc.). Mastery on an initial quiz over this course description

was required by all students before they were given the first unit study guide.

There were 169 students enrolled in the PSI course, most of whom were sophomores, juniors, and seniors. Twenty undergraduates who had had a previous course in personality served as discussion leaders, and testing proctors.

This course was compared to a course in personality given the previous year, 1972, by the same instructor. The prior course had a traditional lecture format in which 172 students, composed of sophomores, juniors, and seniors, were graded on the basis of five quizzes staggered throughout the semester.

Both courses used the same text, Introduction to Personality by Mischel (1971). Material covered in the lectures of the traditional course served as the basis of the material presented in the study guides of the PSI course. The study guides also included a list of relevant names, terms, and concepts, and a set of study questions. The function of lectures was different for the two years examined. In 1972, students were tested on material presented in the lectures and in the readings. On the other hand, PSI lectures were not mandatory as students were tested on material presented in the study guides and readings. This allowed PSI lectures to serve a motivational purpose through the use of demonstrations, outside speakers, and films. Another basic difference between the two years was that in the PSI course, students participated in small weekly discussion sessions led by trained undergraduate proctors.

At the end of both courses, students were asked to complete an evaluative questionnaire utilized by all university personnel to assess

the course, the instructor, and their own involvement in the course.

Results and Discussion

As previously mentioned, this study examined the relative effectiveness of the PSI method as compared to the traditional lecture course. In order to test this hypothesis, we compared distributions and responses on the evaluative questionnaire for the two samples. Analyses were performed using a Kolmogorov-Smirnov approximation to a Chi Square distribution with two degrees of freedom for large samples (Siegel, 1956).

A comparison of evaluations completed at the end of the 1972 and the 1973 courses showed many significant differences. The questionnaire was divided into three sections of approximately eight questions each. Students rated the course, the instructor, and their own involvement in the course along a nine-point scale in the following manner: A+ = 4.5, A = 4.0, B+ = 3.5, B = 3.0, C+ = 2.5, C = 2.0, D+ = 1.5, D = 1.0, E = 0.0.

Course. When questioned about the course readings, students in the 1973 PSI course found the readings to be significantly (χ^2 = 15.62, df = 2, $p<.001$), more adequate than did the students in the 1972 traditional course. The only difference in the reading assignments was the use of study guides and the utilization of this material for the 1973 course. Students in 1973 also found that the assignments and classwork were more mutually reinforcing (χ^2 = 13.04, df = 2, $p<.01$) than students in 1972. The exams given in the PSI course also proved to be more helpful to the student in the organizing and re-examining of course material than the exams given in the traditional course (χ^2 = 42.02, df = 2, $p<.001$). Moreover, the PSI course was found to introduce more new ideas, concepts,

and methods than the traditional course (χ^2 = 19.50, df = 2, p<.001). In the overall course evaluation, students in the PSI course gave the personality course significantly higher grades than students in the traditional course (χ^2 = 23.84, df = 2, p<.001). This distinction between the two distributions is reflected by a difference in the two means of .84. In 1972, the mean grade given to the course was a C (mean = 2.23), and in 1973, the mean grade was a B (mean = 3.07).

It was also found that PSI students had a clearer understanding of the course mechanisms than the traditional students (χ^2 = 47.00, df = 2, p<.001). This result can be attributed to the requirement placed on PSI students to pass an initial quiz on the course mechanism prior to beginning actual course work.

Enter Table 1 about here

As we expected, there were no significant differences between the two courses in ease or difficulty. Similarly, the PSI and traditional courses did not differ in the role other students in the course played in facilitating learning. This latter issue is surprising since in the PSI format students had more exposure to one another in the small discussion groups.

Instructor. Evaluation of the instructor's oral presentation improved significantly in 1973 as compared to 1972 (χ^2 = 17.96, df = 2, p<.001). This may be due to the difference in function of lectures for the two years. In 1972, there was a heavy emphasis on the informational aspect of the lectures, while in 1973, the lectures were more informal

and served a motivational purpose. The instructor's enthusiasm for and promotion of interest in the course were rated higher for the PSI course as compared to the traditional course (X^2 = 10.60, df = 2, $p<.01$; X^2 = 11.05, df = 2, $p<.01$, respectively). Students in the PSI course rated the instructor's attempts to place the course within larger contexts higher than those in the traditional course (X^2 = 8.03, df = 2, $p<.01$). The overall grade given to the instructor, who was the same for both the PSI and the traditional courses, was significantly higher in 1973 than in 1972 (X^2 = 15.21, df = 2, $p<.001$).

Enter Table 2 about here

The mean grade given to the instructor in 1973 was midway between a C+ and a B (mean = 2.76) and in 1972, it approached a C (mean = 1.97, C = 2.0). There were no significant differences between the two years in the instructor's availability for questions outside class and in his perceived interest in students' progress.

Students. Although they attended less lectures than the traditional group (X^2 = 48.65, df = 2, $p<.001$), students in the PSI course prepared more for class sessions than those enrolled in the traditional course (X^2 = 16.75, df = 2, $p<.001$). The lower lecture attendance on the part of PSI students was anticipated in view of the optional nature of lectures. Students participated in class discussions more in 1973 than in 1972 (X^2 = 16.71, df = 2, $p<.001$), and gave themselves higher grades in the course (X^2 = 41.26, df = 2, $p<.001$).

Enter Table 3 about here

Three questions dealing with adequate preparation before entering the course, discussion of the course with the instructor, and prompt submission of assignments yielded non-significant differences between the two years.

Summary and Conclusion

In summary, the PSI course yielded student ratings which were more positive for the PSI course in the areas investigated: the course, the instructor, and the student's own role.

This study further extends the existing literature on teaching techniques comparing traditional lecture and PSI methods when used by the same instructor. As such, the results of this study support the hypothesis that a well-organized PSI course in any area will be better received by most students. This is not because of the ease of the course, since we found no differences between the difficulty of the two courses and the number of hours of study each course required. Rather, the basis of success in a PSI course is the student's determination of his/her own grade.

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Question	1972-Traditional Mean	1972-Traditional %[a]	1973-PSI Mean	1973-PSI %[a]	Kolmogorov-Smirnov Approximation to Chi Square Distribution, df = 2
1. Was the required reading (e.g., text) adequate to your needs?	2.83	38	3.32	88	15.62***
2. Did other assignments and classwork reinforce each other?	2.22	30	2.76	83	13.04**
3. Did exams help you to organize and re-examine material?	2.42	38	3.58	85	42.02***
4. Were the other students in this course helpful in your learning?	2.37	32	2.65	80	4.67
5. Were new ideas, concepts or methods introduced?	2.65	38	3.40	88	19.50***
6. Is the course plan and intention clear to you now?	2.30	38	3.71	88	47.18***
7. What overall grade would you give the course?	2.23	36	3.07	87	23.84***
8. Was the course too easy or too difficult?	2.32	36	2.06	86	0.13

[a]indicates percent of students responding

**$p < .01$

***$p < .001$

Table 2

Instructor Evaluation

Question	1972-Traditional Mean	1972-Traditional % [a]	1973-PSI Mean	1973-PSI % [a]	Kolmogorov-Smirnov Approximation to Chi Square Distribution, df = 2
1. Was his oral presentation clear and lucid?	1.77	38	2.66	71	17.96***
2. Did he show enthusiasm for the subject?	2.21	38	2.68	79	10.60**
3. Did he interest you in the subject?	2.08	39	2.64	80	11.05**
4. Did he place the course within larger contexts?	2.45	36	2.77	74	8.03*
5. Was he available for questions outside class?	2.30	36	2.74	72	4.45
6. Did he display interest in your progress in the course?	1.87	32	2.29	69	2.99
7. What overall grade would you give the instructor?	1.96	38	2.76	83	15.21***

[a] indicates percent of students responding

*$p < .02$

**$p < .01$

***$p < .001$

Table 3

Student Evaluation

Question	1972-Traditional Mean	1972-Traditional %[a]	1973-PSI Mean	1973-PSI %[a]	Kolmogorov-Smirnov Approximation to Chi Square Distribution, df = 2
1. How many times did you miss class?	2.25	37	7.95	76	48.65***
2. Were you adequately prepared for course before enrolling?	3.74	36	3.69	83	0.00
3. Did you prepare in advance for each class meeting?	2.26	32	2.97	66	16.75***
4. Did you ask or answer questions in class?	1.51	28	2.51	63	16.71***
5. Did you discuss the course with the teacher outside class?	1.71	27	1.61	66	0.18
6. What grade would you give yourself in this course?	3.43	38	3.86	88	41.26***

[a]indicates percent of students responding

***$p < .001$